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10/699,537	10/31/2003	Dong Keun Han	8111-034-999	2697
20583	7590	03/22/2005	EXAMINER	
JONES DAY 222 EAST 41ST ST NEW YORK, NY 10017			BERMAN, SUSAN W	
			ART UNIT	PAPER NUMBER
			1711	

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/699,537

Applicant(s)

HAN ET AL

Examiner

Susan W Berman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han et al (6,339,113) in view of Huang et al (4,966,934). Han et al disclose compositions comprising bis-GMA, Tri-GMA and Tetra-GMA, a diluent, inorganic filler, photoinitiator and other additives. Han et al do not teach adding an adhesive monomer or a hydrophilic monomer. The weight percents of components disclosed by Han et al '113 and instantly claimed overlap extensively. Han et al '113 do not teach adding an adhesive monomer or a hydrophilic monomer, as set forth in the instant claims.

Huang et al disclose dental adhesive compositions comprising bis-GMA, an adhesive promoting polymerizable monomer and a photoinitiating system and also disclose using HEMA in a primer composition (See columns 3-6, column 7, lines 30-41, and Table VIII). Huang et al teach that the compositions can be provided in a one-component system, cured in seconds by exposure to visible or UV light and display firm sustained adhesion to bones and to dentin and enamel of teeth (column 2, line 58, to column 3, line 20).

It would have been obvious to one skilled in the art at the time of the invention to add an adhesive monomer, as taught by Huang et al in analogous photopolymerizable compositions, to the compositions disclosed by Han et al. One of ordinary skill in the art at the time of the invention would have been motivated by an expectation of taking advantage of the adhesive properties taught by Huang et al. It would have been obvious to one skilled in the art at the time of the invention to add HEMA, as taught by

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Huang et al in analogous compositions, to the compositions disclosed by Han et al in order to provide an adhesive primer, as taught by Huang et al.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han et al [US 2002/0072551, published 06/13/2002] in view of Huang et al (4,966,934). Han et al disclose compositions comprising bis-GMA, Tri-GMA and Tetra-GMA, a diluent, inorganic filler, photoinitiator and other additives. Han et al do not teach adding an adhesive monomer or a hydrophilic monomer. The weight percents of components disclosed by Han et al '312 and instantly claimed overlap extensively.

Huang et al disclose dental adhesive compositions comprising bis-GMA, an adhesive promoting polymerizable monomer and a photoinitiating system and also disclose using HEMA in a primer composition (See columns 3-6, column 7, lines 30-41, and Table VIII). Huang et al teach that the compositions can be provided in a one-component system, cured in seconds by exposure to visible or UV light and display firm sustained adhesion to bones and to dentin and enamel of teeth (column 2, line 58, to column 3, line 20).

It would have been obvious to one skilled in the art at the time of the invention to add an adhesive monomer, as taught by Huang et al to the analogous photopolymerizable compositions disclosed by Han et al. One of ordinary skill in the art at the time of the invention would have been motivated by an expectation of taking advantage of the adhesive properties taught by Huang et al. It would have been obvious to one skilled in the art at the time of the invention to add HEMA to the analogous compositions disclosed by Han et al in order to provide an adhesive primer, as taught by Huang et al.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han et al (6,573,312) in view of Huang et al (4,966,934). Han et al disclose compositions comprising bis-GMA, Tri-GMA and Tetra-GMA, a diluent, inorganic filler, photoinitiator and other additives. Han et al do not teach adding an

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adhesive monomer or a hydrophilic monomer. The weight percents of components disclosed by Han et al '312 and instantly claimed overlap extensively.

Huang et al disclose dental adhesive compositions comprising bis-GMA, an adhesive promoting polymerizable monomer and a photoinitiating system and also disclose using HEMA in a primer composition (See columns 3-6, column 7, lines 30-41, and Table VIII). Huang et al teach that the compositions can be provided in a one-component system, cured in seconds by exposure to visible or UV light and display firm sustained adhesion to bones and to dentin and enamel of teeth (column 2, line 58, to column 3, line 20).

It would have been obvious to one skilled in the art at the time of the invention to add an adhesive monomer, as taught by Huang et al to the analogous photopolymerizable compositions disclosed by Han et al. One of ordinary skill in the art at the time of the invention would have been motivated by an expectation of taking advantage of the adhesive properties taught by Huang et al. It would have been obvious to one skilled in the art at the time of the invention to add HEMA to the analogous compositions disclosed by Han et al in order to provide an adhesive primer, as taught by Huang et al.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999,

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this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-8 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Patent No. 6,573,312 in view of Huang et al (4,966,934). Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons. US '113 claims compositions comprising bis-GMA, Tri-GMA and Tetra-GMA, a diluent, inorganic filler, photoinitiator and other additives. The weight percents of components claimed in US '113 and the weight percents of components instantly claimed overlap extensively. US '113 does not claim an adhesive monomer or a hydrophilic monomer, as set forth in the instant claims.

Huang et al disclose dental adhesive compositions comprising bis-GMA, an adhesive promoting polymerizable monomer and a photoinitiating system and also disclose using HEMA in a primer composition (See columns 3-6, column 7, lines 30-41, and Table VIII). Huang et al teach that the compositions can be provided in a one-component system, cured in seconds by exposure to visible or UV

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light and display firm sustained adhesion to bones and to dentin and enamel of teeth (column 2, line 58, to column 3, line 20).

It would have been obvious to one skilled in the art at the time of the invention to add an adhesive monomer, as taught by Huang et al in analogous photopolymerizable compositions, to the compositions claimed in US '113. One of ordinary skill in the art at the time of the invention would have been motivated by an expectation of taking advantage of the adhesive properties taught by Huang et al. It would have been obvious to one skilled in the art at the time of the invention to add HEMA, as taught by Huang et al in analogous compositions, to the compositions claimed in US '113 in order to provide an adhesive primer, as taught by Huang et al.

Claims 1-8 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of U.S. Patent No. 6,573,312 in view of Huang et al (4,966,934). Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons. US '312 claims compositions comprising bis-GMA, Tri-GMA and Tetra-GMA, a diluent, inorganic filler, photoinitiator and other additives. The weight percents of components claimed in US '312 and the weight percents of components instantly claimed overlap extensively. The claims of US '312 do not set forth an adhesive monomer or a hydrophilic monomer.

Huang et al disclose dental adhesive compositions comprising bis-GMA, an adhesive promoting polymerizable monomer and a photoinitiating system and also disclose using HEMA in a primer composition (See columns 3-6, column 7, lines 30-41, and Table VIII). Huang et al teach that the compositions can be provided in a one-component system, cured in seconds by exposure to visible or UV light and display firm sustained adhesion to bones and to dentin and enamel of teeth (column 2, line 58, to column 3, line 20). It would have been obvious to one skilled in the art at the time of the invention to add an adhesive monomer, as taught by Huang et al in analogous photopolymerizable compositions, to the

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compositions claimed in US '312. One of ordinary skill in the art at the time of the invention would have been motivated by an expectation of taking advantage of the adhesive properties taught by Huang et al. It would have been obvious to one skilled in the art at the time of the invention to add HEMA to the analogous compositions claimed by US '312 in order to provide an adhesive primer, as taught by Huang et al.

Claims 1-8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of copending Application No. 09/749,878 in view of Huang et al (4,966,934). Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons. SN '878 claims compositions comprising bis-GMA, Tri-GMA and Tetra-GMA, a diluent, inorganic filler, photoinitiator and other additives. The weight percents of components claimed in SN '878 and the weight percents of components instantly claimed overlap extensively. The difference is that an adhesive monomer and a hydrophilic monomer are not set forth in the claims of SN '878.

Huang et al disclose dental adhesive compositions comprising bis-GMA, an adhesive promoting polymerizable monomer and a photoinitiating system and also disclose using HEMA in a primer composition (See columns 3-6, column 7, lines 30-41, and Table VIII). Huang et al teach that the compositions can be provided in a one-component system, cured in seconds by exposure to visible or UV light and display firm sustained adhesion to bones and to dentin and enamel of teeth (column 2, line 58, to column 3, line 20). It would have been obvious to one skilled in the art at the time of the invention to add an adhesive monomer, as taught by Huang et al in analogous photopolymerizable compositions, to the compositions claimed in SN '878. One of ordinary skill in the art at the time of the invention would have been motivated by an expectation of taking advantage of the adhesive properties taught by Huang et al. It would have been obvious to one skilled in the art at the time of the invention to add HEMA to the



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analogous compositions claimed by SN '878 in order to provide an adhesive primer, as taught by Huang et al.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of copending Application No. 10/699,117 in view of Huang et al (4,966,934). Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons. SN '117 claims compositions comprising bis-GMA, Tri-GMA and Tetra-GMA, a diluent, an adhesive monomer, inorganic filler, photoinitiator and other additives. The weight percents of components claimed in SN '117 and the weight percents of components instantly claimed overlap extensively. The differences are that (1) the compositions of SN '117 consist of two pastes while the instantly claimed composition is a one-component system, (2) the polymerization initiator in the claims of SN '117 is not specifically a photoinitiation system and (3) that a hydrophilic monomer is not set forth.

Huang et al disclose dental adhesive compositions comprising bis-GMA, an adhesive promoting polymerizable monomer and a photoinitiating system and also disclose using HEMA in a primer composition (See columns 3-6, column 7, lines 30-41, and Table VIII). Huang et al teach that the compositions can be provided in a one-component system, cured in seconds by exposure to visible or UV light and display firm sustained adhesion to bones and to dentin and enamel of teeth (column 2, line 58, to column 3, line 20). It would have been obvious to one skilled in the art at the time of the invention to substitute a photoinitiation system, as taught by Huang et al in analogous photopolymerizable compositions, in the compositions claimed in SN '117. One of ordinary skill in the art at the time of the invention would have been motivated by an expectation of providing a fast curing dental adhesive

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composition in a one component system, as taught by Huang et al. It would have been obvious to one skilled in the art at the time of the invention to add HEMA to the analogous compositions claimed by SN '117 in order to provide an adhesive, as taught by Huang et al.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bunker (4,669,983). Bunker discloses a dentin and enamel adhesive compositions comprising an organic ester of a phosphoric acid and BIS-GMA as adhesive monomer in polymerizable compositions comprising BIS-GMA. The compositions can be one-part packages comprising photoinitiators (column 8, lines 59-62).

Orlowski et al (4,420,306) disclose tetracrylic and tetramethacrylic esters in dental materials. See column 1, line 24, to column 2, line 6, and Examples 1-4.

Kawahara et al (4,327,014) disclose compositions for dental use comprising tri- or tetra-(meth)acrylates of tetramethylolmethane. See formula I in columns 2-4, column 6, lines 22-37,

Yin et al (6,709,271) is cited as art of interest. Yin et al disclose low shrinkage dental composites comprising monofunctional and multifunctional (meth)acrylate monomers and oligomers, such as bis-GMA, visible light initiators, such as camphorquinone, diluent monomers and monomers such as hydroxyalkyl methacrylates.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Susan W Berman  
Primary Examiner  
Art Unit 1711

sb  
March 20, 2005